

MAGDOS LT



Operation & Maintenance Instruction

Read these operation & maintenance instructions
before start up!

To be held for future reference.

Operation & Maintenance Instructions50
Subject to technical changes.

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1. Safety

1.1 General

This Operation & Maintenance Manual contains basic information to be noted during installation, operation and maintenance. It is therefore essential that the Manual is read by the contractor before installing and commissioning the pump/system as well as by the relevant operating personnel / owner of the pump/system. It must remain accessible at the dosing pump/system for reference at all times.

In addition to the general safety instructions under this main heading Safety, the special safety precautions outlined in other sections must also be observed.

1.2 Warnings used in this Operation & Maintenance Manual

This Operation & Maintenance Manual contains vital information, which may endanger people, the environment and the dosing pump/system if disregarded. These statements are identified by the following symbols:

DANGER!

Refers to an imminent danger.

Non-compliance can lead to death or extremely serious injury.



WARNING!

Refers to a potentially hazardous situation. Non-compliance can lead to death or serious injury.



CAUTION!

Refers to a potentially hazardous situation. Non-compliance can lead to minor injury or property damage.



NOTICE!

Appears in conjunction with safety instructions, which may endanger the pump/system and its operation if disregarded.



IMPORTANT!

Draws attention to supplementary information to make the work easier and ensure trouble free operation.



Markings which are affixed directly to the pump, such as

- Cable markings
 - Markings for process fluid connections
- must be observed without fail and must remain fully legible at all times.

1.3 Qualification and training of personnel

The personnel employed for installation, operation, inspection and maintenance must be qualified for this work. The areas of responsibility, competence and supervision of the personnel must be precisely defined by the owner. Personnel who do not have the required knowledge must be duly trained and instructed. If necessary, this training can also be provided by the manufacturer/supplier on behalf of the dosing pump's owner. In addition, the owner of the system must ensure that the relevant personnel are fully familiar with and have understood the contents of this Operation & Maintenance Manual.

1.4 Important safety instructions

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:
Read and follow all instructions!



WARNING!

WARNING!

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.



WARNING!

WARNING!

Risk of Electric Shock. Connect only to a grounding type receptacle protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI.

Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers, and other equipment.



WARNING!

WARNING!

To reduce the risk of electric shock, replace damaged cord immediately.

WARNING!

To reduce the risk of electric shock, do not use extension cord to connect unit to electric supply; provide a properly located outlet.



WARNING!

Save these instructions!

1.5 Hazards due to non-compliance with safety instructions

Failure to comply with the safety instructions may endanger not only people, but also the environment and the dosing pump/system. Non-compliance with the safety instructions can lead to the loss of all entitlement to damages.

The following hazards in particular may arise:

- Danger to people due to electrical, mechanical and chemical effects.
- Failure of dosing pump/system functions.
- Failure of specified methods for maintenance and repair.
- Danger to the environment due to leakage of hazardous substances.

1.6 Safe operation

The safety instructions contained in this Operation & Maintenance Manual must be observed. The owner is responsible for ensuring compliance with local safety regulations.

1.7 Safety instructions for the owner/operator

- Leakages (e.g. due to diaphragm rupture) of hazardous substances (e.g. toxic, abrasive) must be discharged in such a way as to exclude all danger to people and the environment. Statutory regulations must be observed.
- Danger due to electric current must be excluded (for further details, refer to the German VDE standards as well as local rules and regulations or chapter 1.4).

1.8 Safety instructions for installation, inspection, and maintenance

The owner must ensure that all installation, inspection and maintenance work is undertaken by authorized and duly qualified skilled personnel who have also studied this Operation & Maintenance Manual.

The dosing pump must always come to a complete stop before starting any work on the pump. The procedure specified in this Operation & Maintenance Manual for shutting down the dosing pump/system must be observed without fail.

Dosing pumps or systems in contact with potentially harmful media must be decontaminated.

All safety mechanisms and guards must be refitted and reactivated as soon as the work is completed.

The instructions outlined in chapter 7.2 „Installation location“ and 9. „Start up“ must be observed before starting the pump/system.

1.9 Unauthorized modification and production of spare parts

The dosing pump may only be modified or converted in consultation with the manufacturer. Genuine spare parts and accessories authorized by the manufacturer ensure greater safety. Liability for damage or loss may be voided if non Lutz-Jesco parts are used.

1.10 Impermissible modes of operation

The operational safety of the pump supplied can only be guaranteed when it is used in conformity with its intended use as specified in Lutz-Jesco contract documents especially the order confirmation. The limit values specified in these documents must never be exceeded.

1.11 Dosing of Chemicals



CAUTION!

CAUTION!

- When working on dosing systems, the accident prevention regulations applicable on-site must be observed and the specified personal protective equipment worn. The following standard protective clothing is recommended, depending on the hazard associated with the metered medium:



Goggles



Protective gloves



Protective suit

All people responsible for installation and maintenance of pumps, piping, hoses and accessories should wear this protective equipment.

- Before working on the dosing pump and plant, disconnect it from the power supply and protect it against reconnection:



CAUTION!

CAUTION!

- Any chemical still present in the dosing head may spray out when the power supply is reconnected. This may lead to caustic or other burns to the face and hands. Dosing lines must always be connected before starting the pump again.
- The chemical resistance of the pump's materials of construction used must be verified before dosing aggressive media!
- The dosing head of the dosing pump as well as connections and lines of the system may be under pressure. Working on the dosing system requires special safety precautions and may only be carried out by instructed technical personnel:



CAUTION!

CAUTION!

- Chemical could spray out. This may lead to caustic or other burns. Always relieve the system/pump pressure before starting work on the dosing pump.
- Before working on the dosing head, check valves and connections, flush the pump's wetted end with a harmless medium (mainly water) to avoid unintentional contact with the metered medium.



WARNING!

WARNING!

- Never look into the open end of a clogged line or valve. Chemical may emerge unexpectedly and cause caustic or other burns to face and hands.
- Before start up, all connections must be inspected for correct tightness and, if necessary, must be further tightened using appropriate tools.

CAUTION!

- If connections at the dosing head are loosened during operation for venting or other reasons, leaking chemical must be removed professionally. This is the only way to avoid the danger of physical injury and corrosion at the dosing pump. Leaking chemical may also damage the diaphragm at its mounting points.

**CAUTION!****NOTICE!**

- When changing the chemical, check whether the pump's and the system's materials of construction are chemically resistant. If there is the danger of a chemical reaction between different media, a thorough cleaning first is mandatory.

**NOTICE!****IMPORTANT!**

- After adjusting the stroke length, the locking screw must be retightened. Otherwise the adjusting knob may change its position. Thus causing faulty flow rates.
- After changing the electrical connections, e.g. removing the level control, the threaded cable joint must be tightened in order to ensure the protection class of the dosing pump.

**IMPORTANT!****DANGER!**

- Fire hazard. Pressure surge: parts may be catapulted off and cause fatal injury. In no case is MAGDOS LT supposed to be used in explosive environment.

**DANGER!****CAUTION!**

- Hot metal parts may burn your hands. Always disconnect the mains power feeder before opening the magnetic drive and let the dosing pump cool for at least one hour.

**CAUTION!****CAUTION!****Malfunctions may arise in**

- Circuits
- Magnetic strips
- Mobile phones

if brought in direct vicinity of the stroking solenoid.**CAUTION!**



IMPORTANT!

1.12 Scope of delivery

IMPORTANT!

Please unpack the dosing pump and ordered accessories carefully in order not to miss small parts. Immediately compare the scope of delivery to the delivery note. If there are any discrepancies, contact your local distributor.

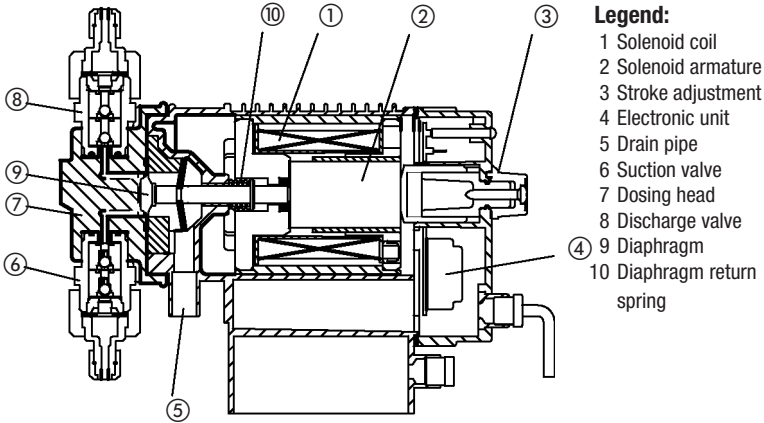
2. General

Dosing pumps are used to add chemicals specifically in various processes. MAGDOS LT can be flexibly used by the user thanks to its universal control system:

- external operation with stroke rate input
- internal operation with a stroking speed of 25% / 50% / 100% of the maximum stroke frequency
- Energy adaption for pressures of up to 16 bar (232 psig)

Metering capacities range from 0.2 to 17 litres per hour (0.53 to 1.56 gph). The exact metered capacities can be derived from the performance curves (chapter 6). All types are available for testing in accordance with the German regulation DVGW-DIN 19635.

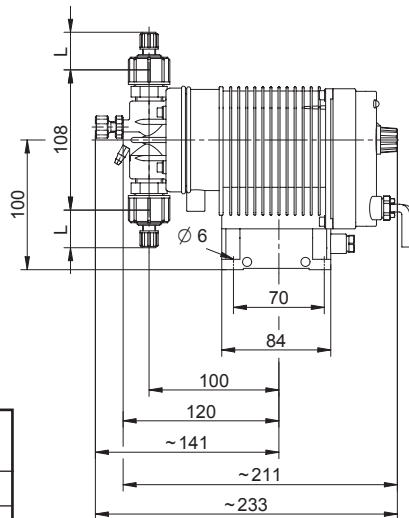
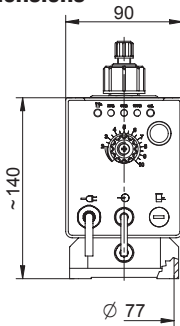
3. Description



- Legend:**
- 1 Solenoid coil
 - 2 Solenoid armature
 - 3 Stroke adjustment
 - 4 Electronic unit
 - 5 Drain pipe
 - 6 Suction valve
 - 7 Dosing head
 - 8 Discharge valve
 - 9 Diaphragm
 - 10 Diaphragm return spring

The solenoid coil ① of the drive solenoid is activated in a pulsating manner by the electronic unit ④ in the MAGDOS LT dosing pump. The solenoid armature ② forces the diaphragm ⑨ to the left and displaces the liquid in the dosing head ⑦. The liquid escapes through the discharge valve ⑧ into the discharge line. When the solenoid armature is de-energized, the diaphragm return spring ⑩ moves the solenoid armature ② and diaphragm ⑨ back to its original position. A negative pressure is produced in the dosing head ⑦ and liquid is drawn in through the suction valve ⑥. Leakages due to a diaphragm rupture are discharged in a controlled manner through the drain ⑤.

4. Dimensions



Nominal width	Tubing connection	Dim. L
DN 4	4/6	13 mm
DN 6	6/12	23 mm
	6/9	34 mm

All dimensions in mm. For dimensions in inches refer to page 95.

5. Technical data

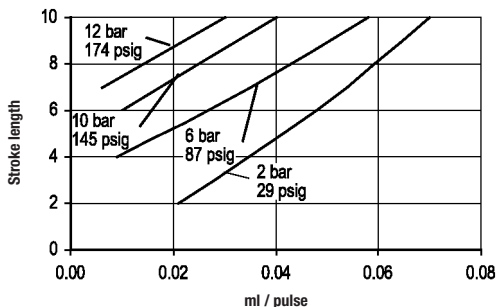
MAGDOS LT	02	06	1	3	4	6	10	17
Max. pressure* [bar]	12	16	16	16	12	10	8	3
Flow rate at max. pressure* [l/h]	0.14	0.48	0.9	1.6	3.3	5.2	7.9	13.5
Medium pressure* [bar]	6	8	8	8	6	6	6	2
Flow rate at medium pressure* [l/h]	0.28	0.7	1.4	2.8	3.7	5.5	10.1	17
Max. stroke frequency [1/min]	80					120		
Suction lift [m H ₂ O] for non-effervescent media	3						2	1.2
Max. supply pressure [mbar]	800						700	400
Power supply	115 V AC or 230 V AC +/- 10 %, 50/60 Hz 24 V DC +/- 10 %							
Power supply cable	2 m (230 V AC with shock-proof plug, 115 V AC with UL-/CSA-plug, 24 V DC 2-wire connecting cable)							
Power consumption	30 W							
Max. power consumption during dosing stroke	230 V AC: 2.9 A; 115 V AC: 4.3 A; 24 V DC: 17 A							
Soldered fuse	230 V AC and 115 V AC: 3.15 A slow 24 V DC: 10 A slow							
Protection class	IP 65							
Insulation class	F							
Input pulse duration	> 10 ms							
Voltage at level connection	5 VDC, for potential-free switching outputs							
Voltage at pulse input	5 VDC, for potential-free switching outputs							
Max. ambient temperature	45 °C (with PVC parts 40 °C)							
Max. process fluid temperature	50 °C (with PVC parts 35 °C)							
Weight	approx. 2.7 kg							
max. sound pressure level [dB(A)] without pressure	58						66	
max. sound pressure level [dB(A)] at test pressure	60						68	

* The exact metered capacities can be derived from the performance curves.

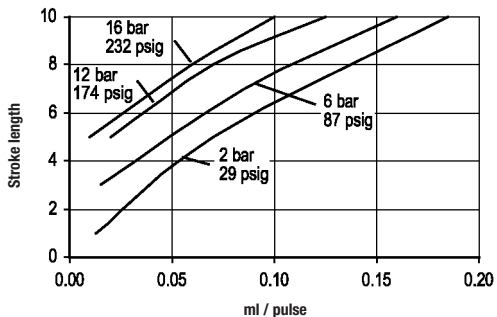
Technical data for the USA refer to page 96.

6. Performance curves

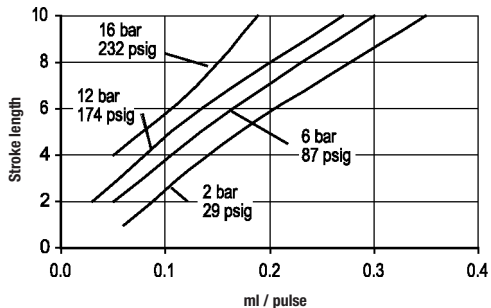
The performance curves refer to water at 20 °C (68 °F). The performance of the dosing pump depends on the viscosity of the process fluid and hydraulic installation conditions. Dosing pumps must therefore be gauged in litres during application.



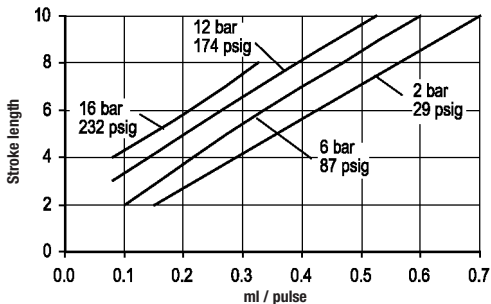
MAGDOS LT 02



MAGDOS LT 06

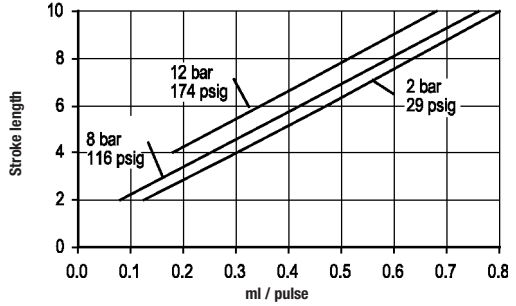


MAGDOS LT 1

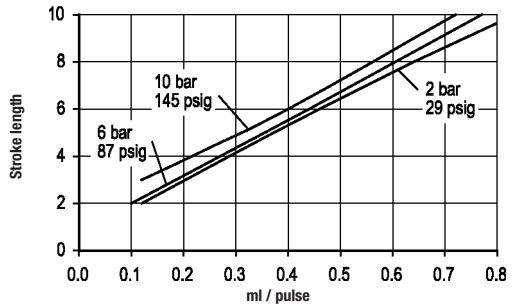


MAGDOS LT 3

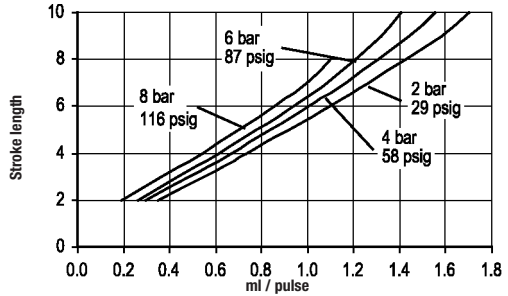
MAGDOS LT 4



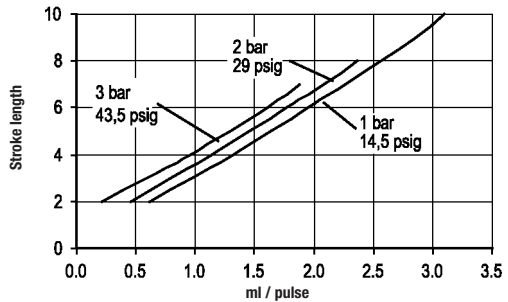
MAGDOS LT 6



MAGDOS LT 10



MAGDOS LT 17



7. Installation

7.1 General notes of instruction

For the selection of a dosing pump when designing a system as well as for the installation and operation, local rules and regulations must be obeyed. This applies to the selection of appropriate materials of construction, the handling of the chemicals and the electrical installation. At the same time the technical data of the dosing pump (chapter 5.) must be taken into consideration. The system must be designed accordingly/properly (e.g. pressure loss in lines depending on nominal diameter and length).

The designer and the user are responsible to make sure that the whole system including the dosing pump is constructed so that neither plant equipment nor buildings are damaged in the case of chemical leakage due to the failure of wear parts (e.g. diaphragm rupture) or burst tubing. If the chemical plant represents a potential danger, the installation must be carried out in a way that no unreasonably high consequential damages occur, even if the dosing pump fails. Therefore we recommend the installation of leakage probes and containment tanks.

The drain pipe of the dosing head must be visible in order for a diaphragm failure to be detected. Drainage must be routed with a downward slope to the collecting tank.

To increase the dosing accuracy and to ensure the functional reliability, we recommend the use of additional accessories! These include back pressure valves, relief valves, leakage probes and low level indicators, as shown in the installation examples. Always use appropriate tools for the installation of plastic connecting parts.

To avoid damage, never apply excessive force.

IMPORTANT!

Plastic parts (especially PVC parts) can be tightened and loosened more easily if the thread is lubricated with slip additive (e.g. silicone grease).

Threaded stainless steel parts (i.e. dosing head and check valves) have to be lubricated before assembled (i.e. PTFE-spray). This will make the disassembly easier when performing maintenance on the pump.

NOTICE!

The slip additive must be compatible with the chemical to be metered.

7.2 Installation location

The installation location of the dosing pump must be easily accessible for the operating and service staff.

The operation sound of the dosing pump might be transmitted to the piping and thus result in a disturbing noise level. In this case, it is recommended to mount the dosing pump on a wall bracket which, for the same reason, should be fixed to outer walls instead of interior walls adjacent to occupied rooms. When installing the dosing pump below the storage level of the process fluid, care must be taken to ensure that chemical leakages due to a broken diaphragm cannot cause any damage (collecting pan, leakage sensor).

It is also possible to mount the pump directly on the chemical supply tank.

Please note the ambient temperature of the dosing pump (refer to technical data table). Radiant heat of apparatus and heat exchangers must be shielded so that the dosing pump



IMPORTANT!



NOTICE!

can still dissipate its own heat sufficiently. Exposure to direct sunlight must be avoided. If the dosing pump is installed outside, provide a roof to protect it against weather.

7.3 Water meter installation

The MAGDOS LT can be controlled by any standard contact water meter. To avoid interferences or faulty pulses, the dosing pump must not be mounted directly to the water meter. Direct mounting is acceptable if a separator (Part No. 21801) is used, which provides the required distance of 50 mm. Due to this fact the pump should be mounted on a chemical supply tank or a wall bracket. The pulse sequence of the water meter must be tuned to the maximum stroke frequency of the dosing pump (chapter 5. technical data).

7.4 Electrical connection

DANGER!



DANGER!

- Fire hazard. Pressure surge: parts may burst and cause fatal injury.
In no case is MAGDOS LT supposed to be used in explosive environment.

The electrical connection of the dosing pump must be made according to the local rules and regulations and may only be carried out by technical personnel.

NOTICE!



NOTICE!

The metering pumps has to be plugged into a grounded power outlet. The 230 VAC version of the MAGDOS LT is connected via a grounded appliance plug connector. The 115 VAC version is equipped with a UL/CSA plug connector. The 24 VDC version has a 2-wire cable 2 x 1 mm².

NOTICE!



NOTICE!

The metering pump is double-insulated and grounded. Control cables must not be routed parallel to high-voltage current lines or supply mains. Route supply and signal lines in separate channels. In the case of junctions, a 90° angle is required. If lines are more than 2 meters (3feet) long, shielded cables must be used. To avoid incorrect metering after the process is finished, the dosing pump must be locked electrically and hydraulically.

7.5 Level control

If a level control is connected, the jack plug has to be covered by a plastic sleeve in order to maintain the protection class. The required sleeve is part of the level control (also in combination with a suction line).

A connected level control causes the dosing pump to stop if the chemical level in the supply tank is low. Thus air bubbles are prevented from entering the suction line and the dosing head. The red LED lights. As soon as the level input is closed again, the pump restarts.

The level sensor must be designed as a max. make / normally open contact.

The MAGDOS LT identifies automatically if the level input is connected. If no plug is connected, the MAGDOS LT operates as if the contact was closed.

7.6 Pressure sustaining and safety valves

Pressure sustaining valves are accessories for optimizing the dosing process. They are used

- to increase the dosing accuracy in the presence of fluctuating back pressure.
- with long dosing lines in order to prevent excess delivery, as the accelerated medium continues moving on account of its own inertia even when the delivery stroke has already ended.
- to prevent siphoning through the dosing pump if the suction pressure is higher than the system pressure.

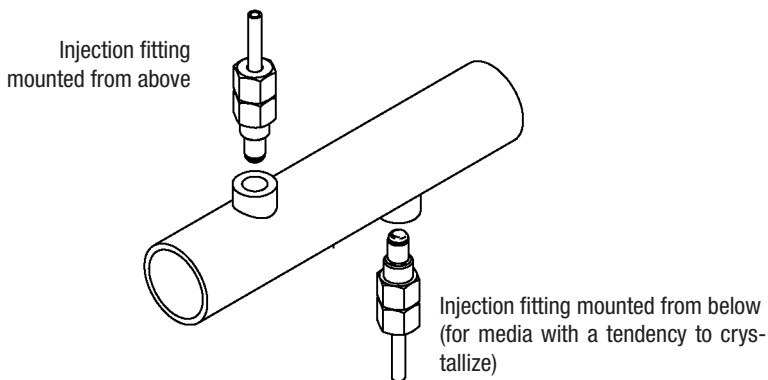
Safety and pressure relief valves protect the dosing pump and the associated accessories and lines from overloads. Those prevent the system pressure from rising to an impermissible high level on the discharge side of the dosing pump, what may be caused by the accidental closing of valves while pump in operation or a clogged injector.

The PENTABLOC is an accessory that combines several functions: among others a pressure sustaining valve as well as a safety valve. Such functions as anti-siphon, pressure relief and flow indication and monitoring are also integrated.

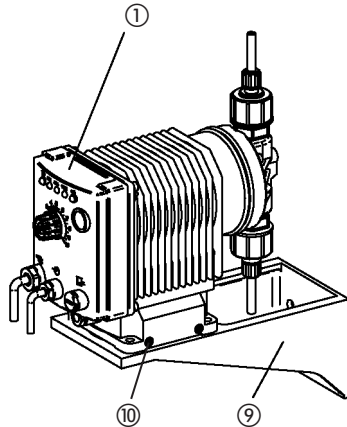
7.7 Injection nozzles

Injection nozzles are used to mix the metered process fluid into a main stream and simultaneously fulfill a non-return function. The injection nozzle is usually installed in the main line from above. Installation from below is only recommended in the case of media with a tendency to crystallize. Thus entrapped air is able to leave.

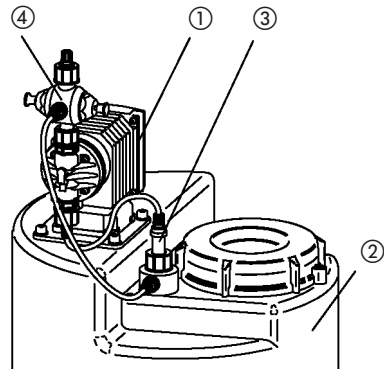
In the case of media with a tendency to contaminate the injector, it is advisable to use an injector which can be dismantled for maintenance and shut off.



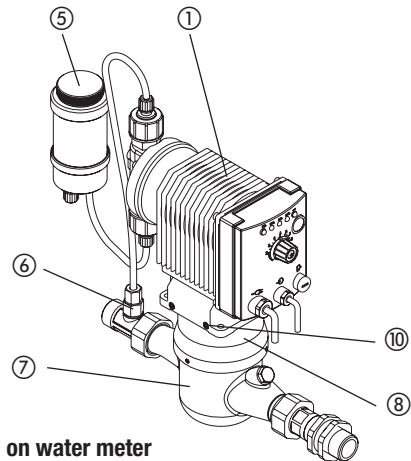
7.8 Installation examples



on wall bracket



on chemical tank



on water meter

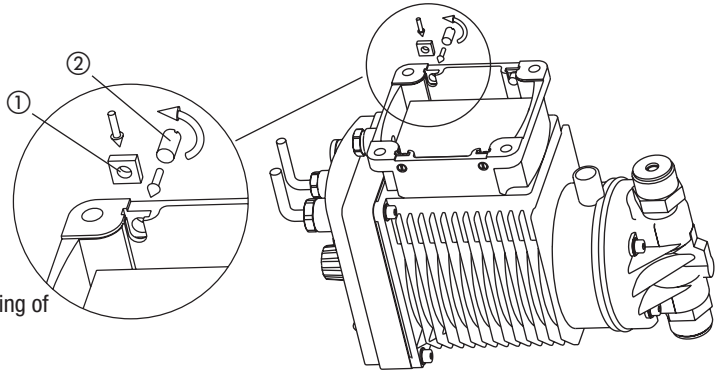
Legend

- 1 MAGDOS LT
- 2 Chemical tank
- 3 Suction line with integrated low level control
- 4 Multifunction valve PENTABLOC
- 5 Priming aid
This equipment allows easy start up of small dosing pumps in particular. The entrapped air may serve as pulsation dampener.
- 6 Injection nozzle with non-return valve
- 7 Water meter with contact unit
- 8 Water meter spacer
The spacer is required to avoid that the drive solenoid affects the water meter contact.
- 9 Wall bracket
- 10 Mounting Hardware MAGDOS Pump Riser Base (p/n 37558)

Mounting of MAGDOS LT to Wall Bracket, Tank Mounting Plate, and Pump Riser Base

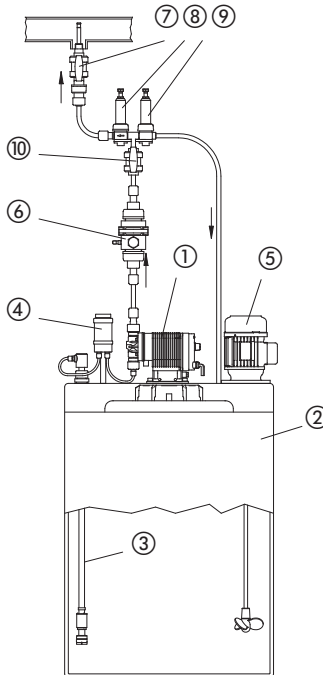
Legend

- 1 Bolt M5
- 2 Rod M5



Mounting Hardware consisting of
 4 x Bolt
 4 x Rod
 (p/n 37558)

Installation example



Legend

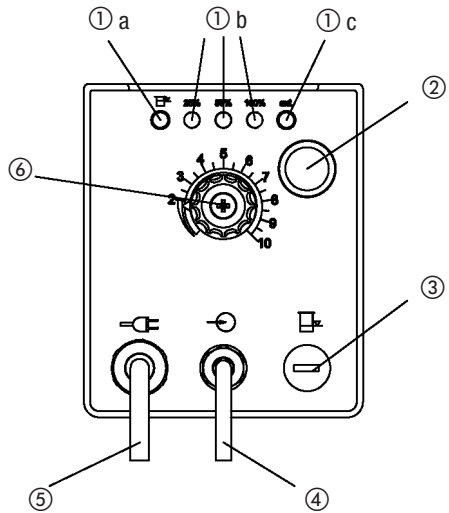
- 1 MAGDOS LT
- 2 Chemical tank
- 3 Suction line with integrated low level control
- 4 Priming aid
- 5 Electric agitator
- 6 Pulsation dampener
- 7 Injection nozzle with non-return and shutoff valve
- 8 Back pressure regulating valve
- 9 Pressure relief valve (safety valve)
- 10 Throttle valve

8. Operation

Control panel MAGDOS LT

Legend

- 1 Operating LEDs
 - 1a level (red)
 - 1b internal (green)
 - 1c external (green)
- 2 Push button for operating mode and programming
- 3 Jack for level sensor connection
- 4 Pulse input cable
- 5 Mains cable
- 6 Stroke adjustment with scale and locking screw



8.1 Setting of flow rate

The flow rate is defined by two parameters:

1. Volumetric displacement per dosing stroke

The stroke length adjustment limits the movement of the diaphragm. Adjusting the stroke length does not have a linear proportional effect on the stroke volume. The volume per dosing stroke is shown in the performance curves or displayed on the dosing pump's calibration table.

For adjustment, loosen the locking screw, adjust to the desired setting and retighten the locking screw.

NOTICE!

Adjust stroke length only, while pump is in operation.



NOTICE!

2. Stroke frequency

Changing the stroke frequency has a direct proportional effect on the flow rate. It is defined by an external pulse generator (e.g. electronic controller or contact water meter).

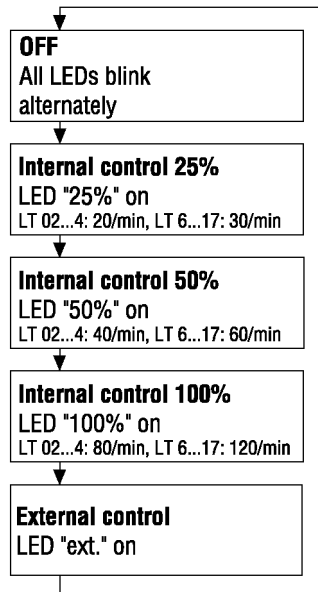
8.1.1 Selection of operating mode

By pressing the push button for approx. 1 second each time, the operating mode is set according to the diagram. The operating mode is stored automatically. After an interruption of the power supply the dosing pump continues to work in the operating mode selected before.

In external mode, a dosing stroke is performed for every pulse received (i.e. from a water meter).

IMPORTANT!

Pulses are not stored when the dosing pump receives more than its maximum pulse rate (see technical data).






IMPORTANT!

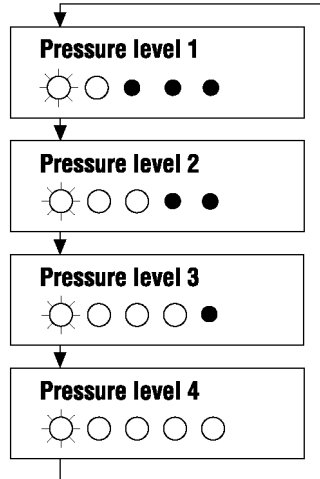
8.1.2 Adjustment to pressure

The MAGDOS LT controls the energy supply of the drive solenoid electronically. Thus the user can adapt the pump easily to the required system pressure. As a result the energy consumption and noise level can be reduced to an optimum level. At the same time the dosing stroke is carried out more smoothly. Thus pressure shocks to the system are lessened.

To go to the setting mode, keep the push button pressed for 3 seconds. In the setting mode the red LED (level) blinks. The number of lit green LEDs indicates the energy level. By pressing the push button shortly one can select one out of four different energy levels. By keeping the push button pressed for 3 seconds the pump's electronic unit returns to the operating mode. The dosing pump does not leave the setting mode automatically.

Status of LEDs:

-  blink
-  on
-  off



IMPORTANT!

IMPORTANT!

If the stroke length setting is less than 100%, the MAGDOS LT is able to deliver against higher pressures.

Energy level	MAGDOS							
	LT 02	LT 06	LT 1	LT 3	LT 4	LT 6	LT 10	LT 17
	for pressure [bar/psig]							
1	4/58	6/87	4/58	-	2/29	2/29	-	-
2	8/116	12/174	10/145	6/87	4/58	6/87	2/29	-
3	12/174	16/232	16/232	12/174	10/145	8/116	4/58	1/14.5
4	-	-	-	16/232	12/174	10/145	8/116	3/43.5



IMPORTANT!

IMPORTANT!

If a higher energy level is selected than recommended, the delivery rate will be higher than specified in the performance curves.

8.1.3 Factory setting

Depending on the model, the MAGDOS LT works at different maximum stroke frequencies. These are preset in the factory. If the dosing pump is to be changed to a different size, it might be necessary to adjust the maximum stroke frequency.

Keep the push button pressed for 10 seconds. The LEDs „level“ and „ext.“ start to blink. By pressing the push button shortly, the max. stroke frequency changes to a different value. To store the selected value and return to the operating mode, keep the push button pressed for 3 seconds. The dosing pump does not leave the setting mode automatically.

Legend





blink



on



off

Status of LEDs	Max. stroke frequency	Factory setting for
	80 min ⁻¹	LT 02...4
	120 min ⁻¹	LT 6...17

IMPORTANT!

Increasing the stroke frequency beyond the specified characteristic values simultaneously reduces the maximum possible discharge pressure.



IMPORTANT!

9. Start up

NOTICE!

Personal protective equipment as specified by on-site safety regulations must be worn at all times while working on the dosing pump!



NOTICE!



Goggles



Protective gloves



Protective clothing

1. For first startup, set pump to internal operation with 100% stroke frequency and allow pump to prime. For this purpose, it is advisable to set the stroke to "10". If the dosing pump does not prime drawing from the supply tank, the dosing head must be filled with process liquid (through the top of the head after removing the discharge check valve) while the pump is switched off. If the medium is not hazardous, it can be used directly; otherwise use a neutral medium that will not disturb the process (water can be used in many cases).

WARNING!

Chemical could spray out. This may lead to caustic or other burns. Ensure that the line is not under pressure before disconnecting it.

Mount discharge valve, switch on the dosing pump and allow it to prime again (priming aid is recommended, refer to installation examples).

2. If a venting facility is integrated in the dosing head or is available as separate unit, open it while the dosing pump is operating until liquid escapes. Then close it. In the case of effervescent media allow the process fluid to flow continuously (approx. 1 drop per 1...3 strokes).

The escaping chemical must be returned to the storage vessel with the aid of a hose connector.

3. When desired operation is achieved, set flow rate and lock adjusting knob. For a first approximation refer to the calibration table attached to the dosing pump. Such a calibration table indicates the stroke length setting for a selected flow rate per stroke (ml/pulse) as a function of the system pressure. Intermediate values must be calculated.



WARNING!

Example:

bar	psig	0,05	0,10	0,15	0,20	0,25	0,30	ml pulse
2	29	-	2,6	4,3	5,8	7,3	8,7	Hub- länge
6	87	2,0	3,8	5,5	7,1	8,5	10,0	stroke length
12	174	2,8	4,8	6,5	8,0	9,4	-	
16	232	4,0	5,8	8,0	-	-	-	LT 1

Required capacity: 0.15 ml/pulse at 6 bar (87psig). The value found is H (Stroke Length Setting) = 5.5 and must be set on the stroke length adjusting knob while the dosing pump is operating.



NOTICE!

NOTICE!

Depending on the installation, the chemicals used and the media temperature, these values may differ and must be verified under operating conditions.

4. In the case that the dosing pump shall be controlled by an external source (e.g. by water meter), change the operation mode to "external". To check the function, initiate the water flow by opening a valve in the main line and wait for pulse generation by the water meter.
5. The manufacturer of the dosing equipment is not responsible for damages due to excessive or low flow rates resulting from faulty dosing pump settings or insufficient and incorrect installation of peripheral accessories and fittings.

10. Shutdown

Before starting any maintenance and before prolonged downtime, drain the chemical from the dosing pump and rinse it with a neutral medium.



CAUTION!

CAUTION!

Excess chemical must be disposed of in accordance with local rules and regulations. Note the applicable accident prevention regulations and wear personal protective equipment.



Goggles



Protective gloves



Protective clothing



CAUTION!

CAUTION!

The dosing pump must be disconnected from the power supply and secured to prevent unauthorized restarting.



CAUTION!

CAUTION!

The pressure must be relieved before disconnecting the discharge line from the pump discharge valve so that chemical will not spray out.

It is advisable to loosen the discharge and suction check valves in order to drain the dosing head.

11. Maintenance

Dosing pumps are produced according to the highest quality standards and have a long service life. Nevertheless some parts are subject to wear caused by operation (e.g. diaphragm, valve seats, valve balls). To ensure a long operating life, visual inspection is recommended regularly. Periodic maintenance protects dosing pump and system from unexpected downtime.

NOTICE!

The dosing pump may have to be re-adjusted after changing the diaphragm or replacing other parts (chapter 11.5 correcting the stroke length adjustment).



NOTICE!

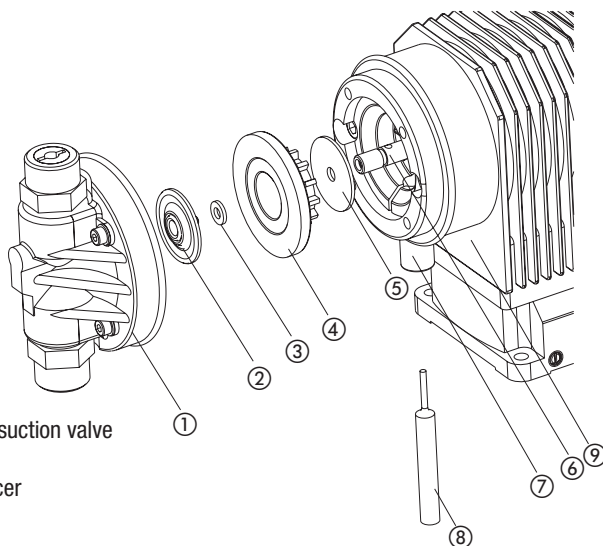
11.1 Replacing the diaphragm

CAUTION!

Chemical could spray out. This may lead to caustic or other burns. The dosing pump head must always be depressurized and rinsed with water or a suitable medium before starting any work on the dosing pump.

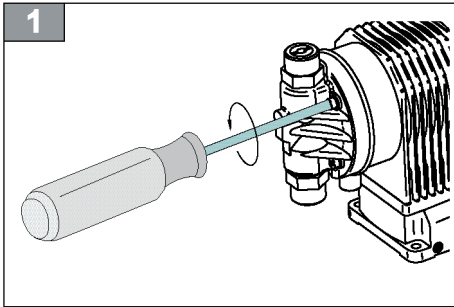


CAUTION!



Legend

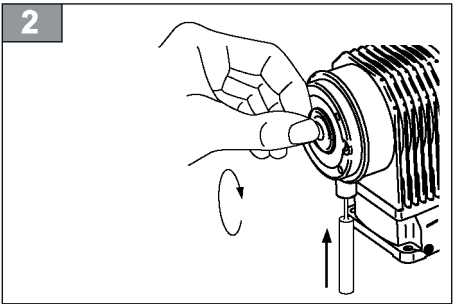
- 1 Dosing head
with discharge and suction valve
- 2 Diaphragm
- 3 Support plate / Spacer
- 4 Diaphragm insert
- 5 Deflector plate
- 6 Diaphragm rod
- 7 Drain pipe
- 8 Locking pin (Part No. 29379)
- 9 Drive unit housing



Replacing the diaphragm

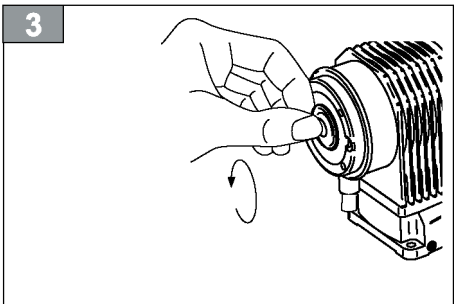
1. Remove the dosing head ① with a suitable tool (size 3 Allen key).

Figure 1



2. With the dosing pump operating, adjust stroke length setting to 0% and then turn pump off. Insert the locking pin ⑧ (Part No. 29379) through the drainage pipe into the drilled hole in the diaphragm rod ⑥.

If the diaphragm rod has twisted so that the drilled hole cannot be reached, grab the outer edge of the diaphragm ② and turn it clockwise until the drilled hole can be seen through the drain pipe. The diaphragm rod can then be secured with the locking pin. Figure 2



3. Switch off the pump.

4. Grab the edge of the diaphragm ② and turn it counterclockwise. The support plate/ spacer ③ behind the diaphragm is removed at the same time. Figure 3

IMPORTANT!

The diaphragm insert ④ and the support plate/ spacer ③ must be cleaned before installing a new diaphragm. Otherwise the diaphragm may be attacked from the rear that is still contaminated.

NOTICE!

Inspect that the deflector plate ⑤ is in perfect condition, „Check and replacing the deflector“ (Chapter 11.2).

5. Grease the diaphragm rod with Molykote DX at the contact point with the housing bushing and along the diaphragm thread.

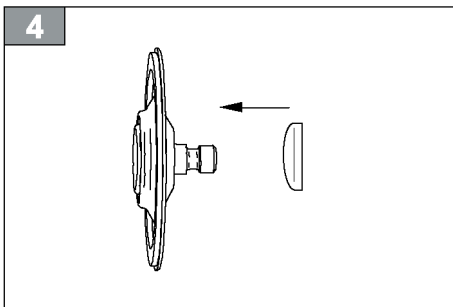


IMPORTANT!

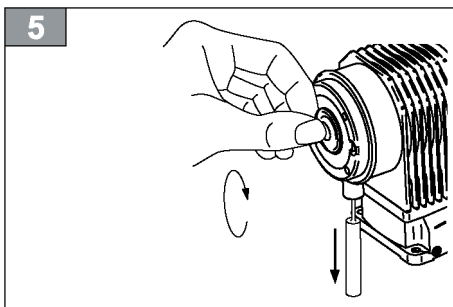


NOTICE!

6. Push the support plate / spacer ③ onto the threaded connector of the new diaphragm with the concave side facing towards the diaphragm. *Figure 4*

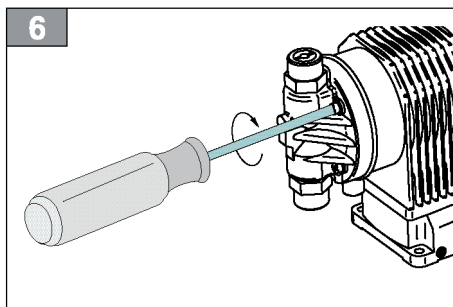


7. Turn the new diaphragm ② clockwise into the diaphragm rod together with the support plate / spacer washer ③ until it locks tightly to the stroking rod. The smooth side of the end of the support is pressed against the end of the diaphragm rod. *Figure 5*



8. Now remove the locking pin ⑧. *Figure 5*
Start pump to adjust stroke length adjustment to 0%. Turn pump off to install dosing head.

9. Install the dosing head ①. Tighten the screws alternately, e.g. top left – bottom right – top right – bottom left. A tightening torque of **125 Ncm** is required for the dosing head screws. *Figure 6*



IMPORTANT!

The diaphragm will not provide a tight seal if the tightening torque is too low. The dosing head may be damaged if the tightening torque is too high.



IMPORTANT!

10. After reconnecting the suction and discharge line, the dosing pump is started as described in the section start up (Chapter 9)

If the diaphragm is frequently worn down and requires frequent replacement, refer to the section „Troubleshooting“ (Chapter 13) for a description of possible causes.

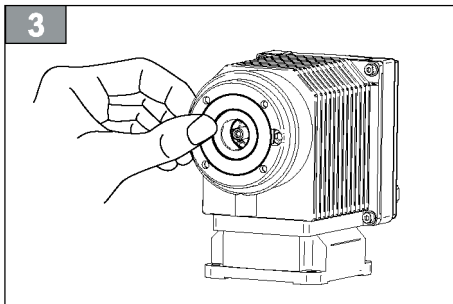
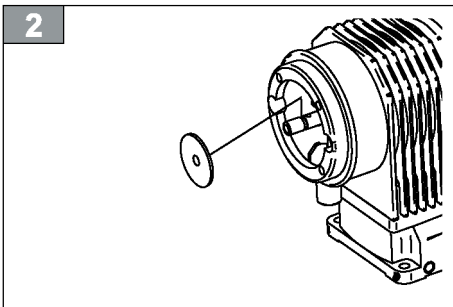
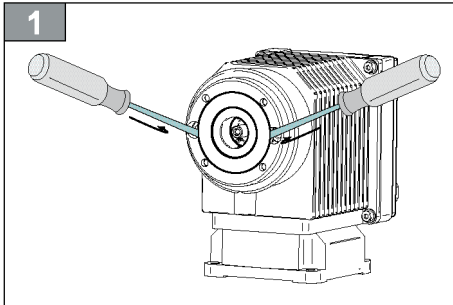
11.2 Inspecting and replacing the deflector plate



CAUTION!

CAUTION!

Chemical could spray out. This may lead to caustic or other burns. The dosing head must always be depressurized and rinsed with water or a suitable medium before starting any work on the dosing pump.



The following steps are required to verify that the deflector plate is in perfect condition and to replace it if necessary. Repeat steps 1-4 of Chapter 11.1 „Replacing the diaphragm“.

The deflector plate (5) can be reached after removing the diaphragm insert (4). The diaphragm insert can be removed without difficulty by prying it out with two screwdrivers inserted in the countersinks of the outer flanges. *Figure 1*

Examine the condition of the diaphragm. The deflector plate must be replaced if it is damaged.

Remove the old deflector plate. Slide the new deflector plate (5) onto the diaphragm rod until it engages in the groove of the diaphragm rod (6). *Figure 2*

Now press the diaphragm insert into the flange and proceed through steps 5-10 in Chapter 11.1 „Replacing the diaphragm“. *Figure 3*

11.3 Check Valves

The dosing pump check valves must be cleaned regularly.

CAUTION!

Chemical could spray out. This may lead to caustic or other burns. The dosing pump must always be depressurized and rinsed with water or a suitable medium before starting any work on the dosing pump.



CAUTION!

NOTICE!

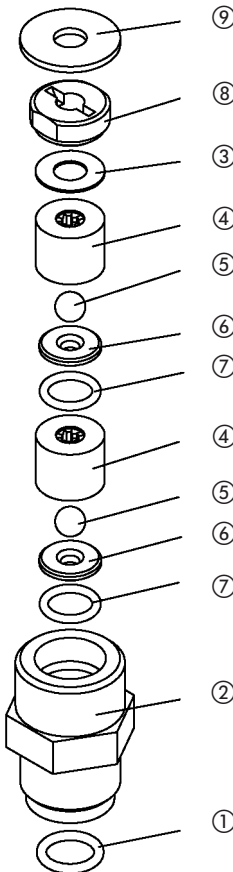
Debris in check valves will reduce the dosing accuracy.



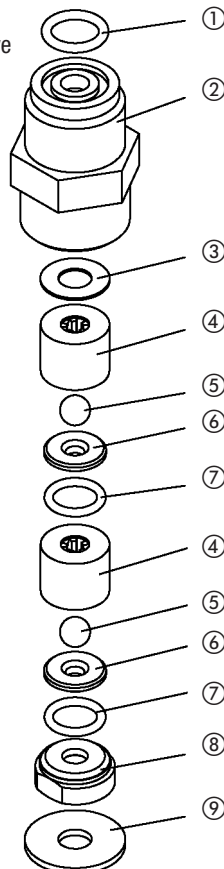
NOTICE!

Double ball check valve

Discharge
check valve



Suction
check valve

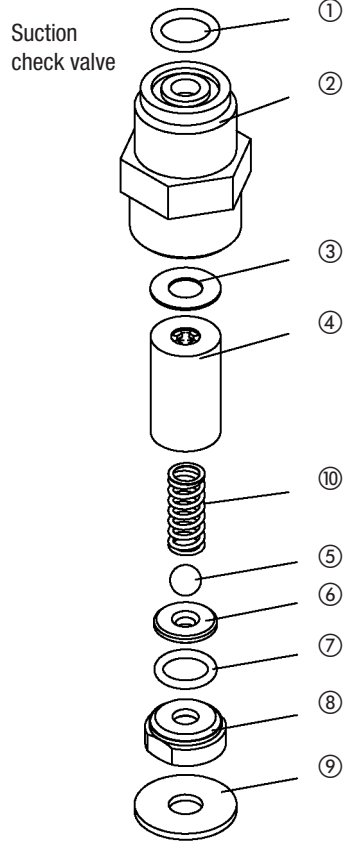
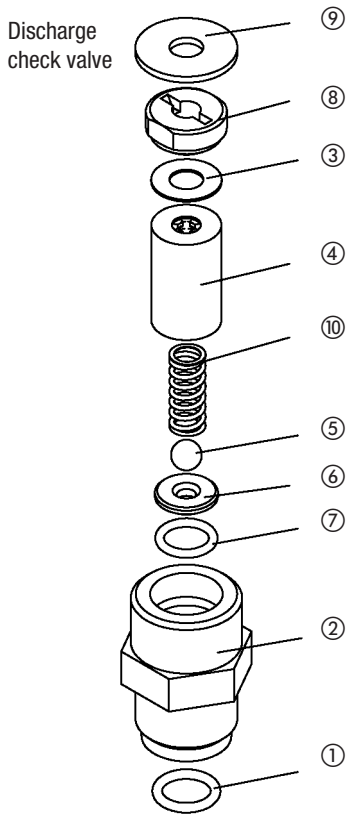


Legend

- | | | | |
|----------------|----------------|------------|---------------------|
| 1. *O-ring | 2. Valve body | 3. *Gasket | 4. Ball guide |
| 5. *Valve ball | 6. *Valve seat | 7. *O-ring | 8. Valve cover plug |
| 9. *Gasket | | | |

*A part of the spare parts kit.

Spring-loaded check valve



Legend

- | | | | |
|---------------|----------------|------------|---------------------|
| 1.*O-ring | 2. Valve body | 3. *Gasket | 4. Ball guide |
| 5.*Valve ball | 6. *Valve seat | 7. *O-ring | 8. Valve cover plug |
| 9.*Gasket | 10. *Spring | | |

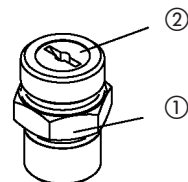
*A part of the spare parts kit.

DN4 valves

DN4 valves are pre-assembled units which can be removed from the dosing head without falling apart into their individual parts. A screwdriver with 10 mm bit is required to disassemble the valves.

Legend

1. Valve body
2. Screwed-in valve plug



11.4 Drive solenoid

DANGER!

Components are energized!

Electric shocks can kill! Unplug the mains connector before opening the pump.



DANGER!

CAUTION!

Hot metal parts may burn your hands. Always disconnect the mains power supply before opening the magnetic drive and let the dosing pump cool down for at least one hour.



CAUTION!

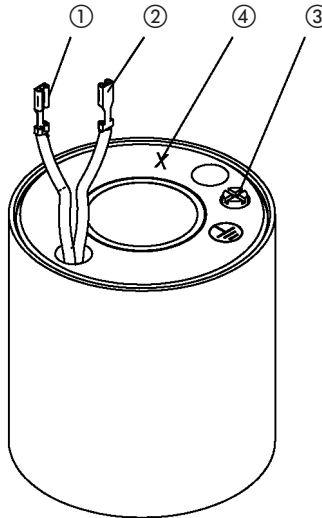
To check, measure the electrical resistance of the solenoid coil when it has cooled down. Disconnect the leads from the electronic unit first.

Drive solenoid

- 1, 2 Power supply
- 3 Ground connection
- 4 Letter

The solenoids differ, depending on the pump version.

Resistance at 20°C (68°F) +/- 5%
Model 230 V AC = 72 Ω, Letter „V“
Model 115 V AC = 17 Ω, Letter „W“
Model 24 V DC = 1,4 Ω, Letter „P“



NOTICE!

The resistance value is up to 30% higher when the coil is at operating temperature.



NOTICE!

If the resistance is substantially lower, there is a short-circuit in the coil. If the resistance is high, the coil is burned out or the wire is broken.

There must not be an electrically conductive connection between the power supply connections ① + ② and the ground connection ③. (Resistance cannot be measured!).

DANGER!

Components are energized!

Electric shocks can kill!

The coil must not be used if there is any electrically conductive connection between the ground connection and the power supply.

After measuring the resistance across the coil, reconnect wiring to circuit board (refer to Chapter 11.6 „Diagram of circuit board“). The ground conductor must be reconnected under all circumstances.



DANGER!

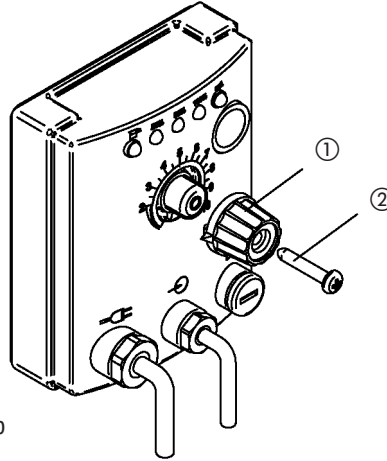
11.5 Correction of stroke length adjustment



IMPORTANT!

IMPORTANT!

After replacing the diaphragm or other spare parts it might become necessary to readjust the dosing pump.



Legend

- 1 Stroke length adjusting knob
- 2 Locking screw

1. Dosing pump set to internal control.
2. Regardless of the indicator position, loosen the locking screw and turn the stroke length adjusting knob counterclockwise until the dosing pump no longer delivers or, in the case of pressureless operation, only delivers minimum.



NOTICE!

NOTICE!

Do not use force, while executing the following. Due to the elasticity of the dampening ring slight movement of the diaphragm still remains even in position „0“. If „zero delivery“ could not be achieved, because the knob has reached the stop position, remove the knob after further loosening the locking screw, turn it clockwise and reattach it. Then adjust zero delivery.



CAUTION!

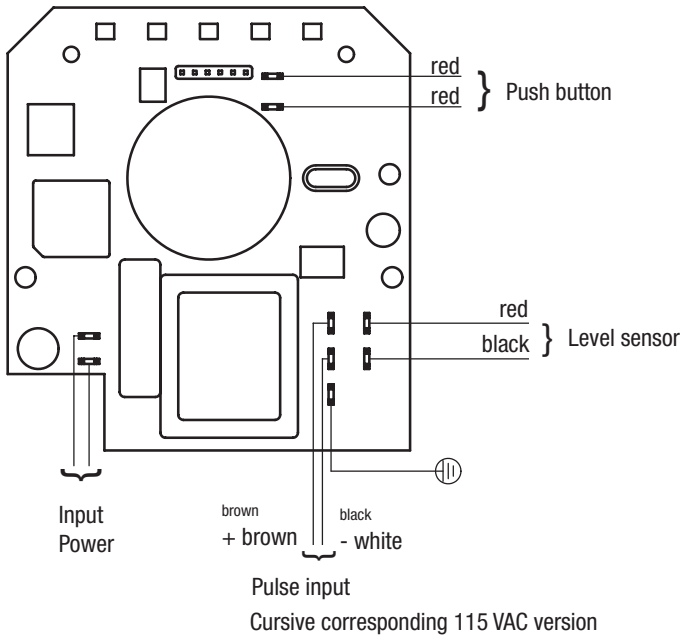
CAUTION!

The discharge line must be routed back to the storage tank during setup in order to prevent dosing excess chemical.

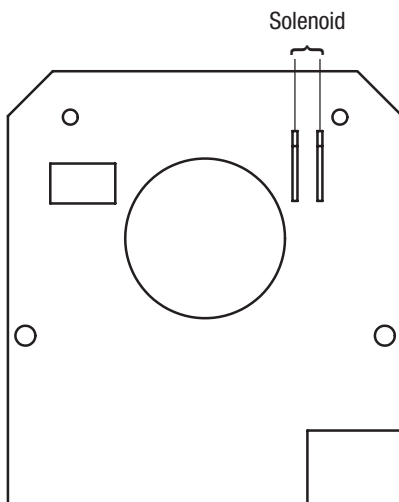
3. Attach knob so that the indicator is pointing to „0“. With the knob tightly held, fasten locking screw.
4. Gauge the capacity of the dosing pump by liters according to a setting listed on the calibration table. If there is a major discrepancy, correct the knob position.

11.6 Diagram of the circuit board MAGDOS LT

Component side



Reverse side

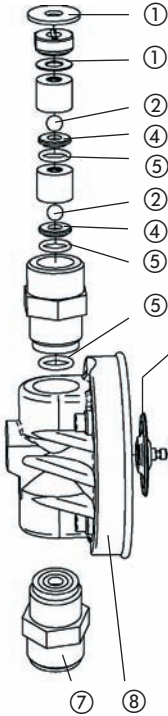
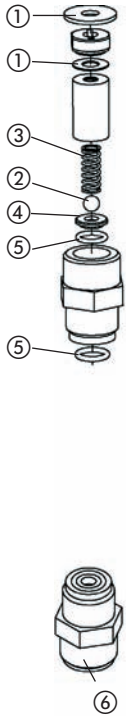


12. Spare parts

12.1 Spare parts list MAGDOS LT 02 ... 06

Spring-loaded
check valve

Double ball
check valve



⑨ Diaphragm, PTFE-coated EPDM 81424

Spacer 37093

Deflector plate 22066

Drive: 230 VAC 37109

115 VAC 37196

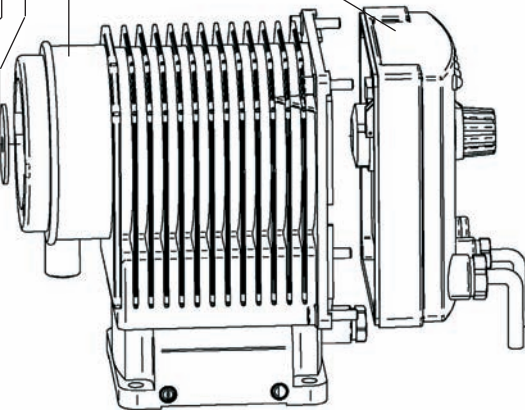
24 VDC 37302

Spare part: Dampening ring 78509

Control unit: 230 VAC 37113

115 VAC 37195

24 VDC 37303



Spare parts list

for MAGDOS LT *with double ball check valves*

Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	29746
② Valve balls	PVC / Glass / EPDM	33696
④ Valve seats	PP/ Glass / FPM	29746
⑤ O-rings	PP/ Glass / EPDM	33696
⑨ Diaphragm	PVDF / PTFE / PTFE	33859
	PVDF / PTFE / FPM	33854
	Stainless steel / PTFE	29747

Further materials upon request.

Spare parts list for MAGDOS LT <i>with spring-loaded check valves</i>		
Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	34775
② Valve balls	PVC / Glass / EPDM	37296
③ Springs	PP/ Glass / FPM	34775
④ Valve seats	PP/ Glass / EPDM	37296
⑤ O-rings	PVDF / PTFE / PTFE	37297
⑨ Diaphragm	PVDF / PTFE / FPM	37326
	Stainless steel / PTFE	37298

⑥ Spring-loaded check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	25087	25088
PVC / Glass / EPDM	33499	33500
PP/ Glass / FPM	35262	35263
PP/ Glass / EPDM	34733	34809
PVDF / PTFE / PTFE	29385	29384
PVDF / PTFE / FPM	34370	34371
Stainless steel / PTFE	25089	25090

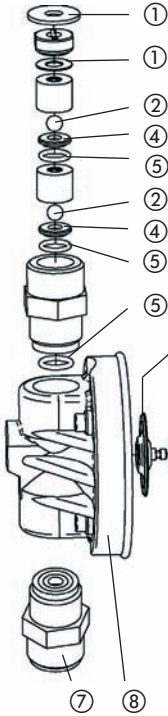
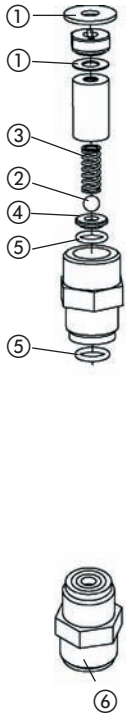
⑦ Double ball check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	20890	20891
PVC / Glass / EPDM	33497	33498
PP/ Glass / FPM	35605	35606
PP/ Glass / EPDM	34647	34648
PVDF / PTFE / PTFE	28111	28112
PVDF / PTFE / FPM	33703	33704
Stainless steel / PTFE	24029	24030

⑧ Dosing head including mounting bolts	
Material	Part No.:
PVC	37311
PP	37317
PVDF	37320
Stainless steel	37323
PVC with venting	37314

12.2 Spare parts list MAGDOS LT 1

Spring-loaded
check valve

Double ball
check valve



⑨ Diaphragm, PTFE-coated EPDM 81424

Support plate 37094

Deflector plate 22066

Drive: 230 VAC 37109

115 VAC 37196

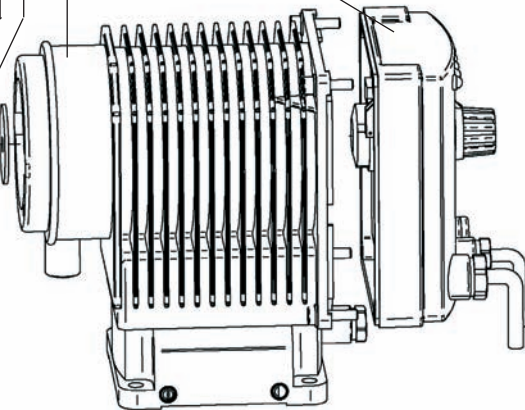
24 VDC 37302

Spare part: Dampening ring 78509

Control unit: 230 VAC 37113

115 VAC 37195

24 VDC 37303



Spare parts list

for MAGDOS LT *with double ball check valves*

Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	29746
② Valve balls	PVC / Glass / EPDM	33696
④ Valve seats	PP/ Glass / FPM	29746
⑤ O-rings	PP/ Glass / EPDM	33696
⑨ Diaphragm	PVDF / PTFE / PTFE	33859
	PVDF / PTFE / FPM	33854
	Stainless steel / PTFE	29747

Further materials upon request.

Spare parts list for MAGDOS LT <i>with spring-loaded check valves</i>		
Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	34775
② Valve balls	PVC / Glass / EPDM	37296
③ Springs	PP/ Glass / FPM	34775
④ Valve seats	PP/ Glass / EPDM	37296
⑤ O-rings	PVDF / PTFE / PTFE	37297
⑨ Diaphragm	PVDF / PTFE / FPM	37326
	Stainless steel / PTFE	37298

⑥ Spring-loaded check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	25087	25088
PVC / Glass / EPDM	33499	33500
PP/ Glass / FPM	35262	35263
PP/ Glass / EPDM	34733	34809
PVDF / PTFE / PTFE	29385	29384
PVDF / PTFE / FPM	34370	34371
Stainless steel / PTFE	25089	25090

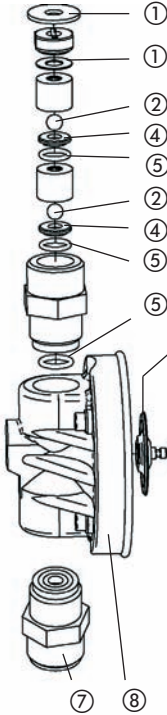
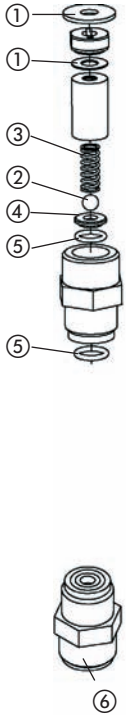
⑦ Double ball check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	20890	20891
PVC / Glass / EPDM	33497	33498
PP/ Glass / FPM	35605	35606
PP/ Glass / EPDM	34647	34648
PVDF / PTFE / PTFE	28111	28112
PVDF / PTFE / FPM	33703	33704
Stainless steel / PTFE	24029	24030

⑧ Dosing head including mounting bolts	
Material	Part No.:
PVC	37312
PP	37318
PVDF	37321
Stainless steel	37324
PVC with venting	37315

12.3 Spare parts list MAGDOS LT 3...6

Spring-loaded
check valve

Double ball
check valve



⑨ Diaphragm, PTFE-coated EPDM 81424

Support plate 37094

Deflector plate 22066

Drive: 230 VAC 37109

115 VAC 37196

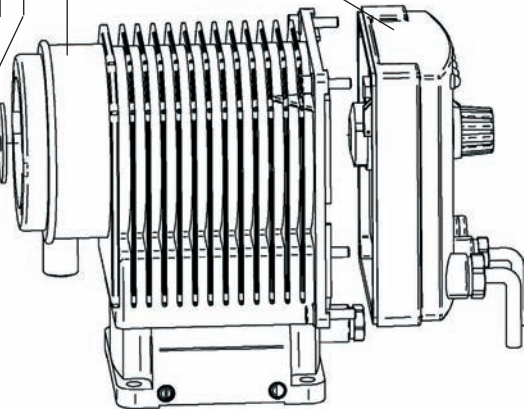
24 VDC 37302

Spare part: Dampening ring 78509

Control unit: 230 VAC 37113

115 VAC 37195

24 VDC 37303



Spare parts list

for MAGDOS LT *with double ball check valves*

Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	29746
② Valve balls	PVC / Glass / EPDM	33696
④ Valve seats	PP/ Glass / FPM	29746
⑤ O-rings	PP/ Glass / EPDM	33696
⑨ Diaphragm	PVDF / PTFE / PTFE	33859
	PVDF / PTFE / FPM	33854
	Stainless steel / PTFE	29747

Further materials upon request.

Spare parts list for MAGDOS LT <i>with spring-loaded check valves</i>		
Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	34775
② Valve balls	PVC / Glass / EPDM	37296
③ Springs	PP/ Glass / FPM	34775
④ Valve seats	PP/ Glass / EPDM	37296
⑤ O-rings	PVDF / PTFE / PTFE	37297
⑥ Diaphragm	PVDF / PTFE / FPM	37326
	Stainless steel / PTFE	37298

⑥ Spring-loaded check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	25087	25088
PVC / Glass / EPDM	33499	33500
PP/ Glass / FPM	35262	35263
PP/ Glass / EPDM	34733	34809
PVDF / PTFE / PTFE	29385	29384
PVDF / PTFE / FPM	34370	34371
Stainless steel / PTFE	25089	25090

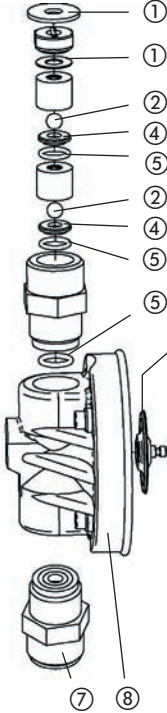
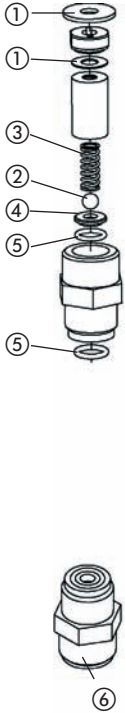
⑦ Double ball check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	20890	20891
PVC / Glass / EPDM	33497	33498
PP/ Glass / FPM	35605	35606
PP/ Glass / EPDM	34647	34648
PVDF / PTFE / PTFE	28111	28112
PVDF / PTFE / FPM	33703	33704
Stainless steel / PTFE	24029	24030

⑧ Dosing head including mounting bolts	
Material	Part No.:
PVC	37313
PP	37319
PVDF	37322
Stainless steel	37325
PVC with venting	37316

12.4 Spare parts list MAGDOS LT 10

Spring-loaded
check valve

Double ball
check valve



⑨ Diaphragm, PTFE-coated EPDM 81463

Support plate 23892

Deflector plate 22066

Drive: 230 VAC 37109

115 VAC 37196

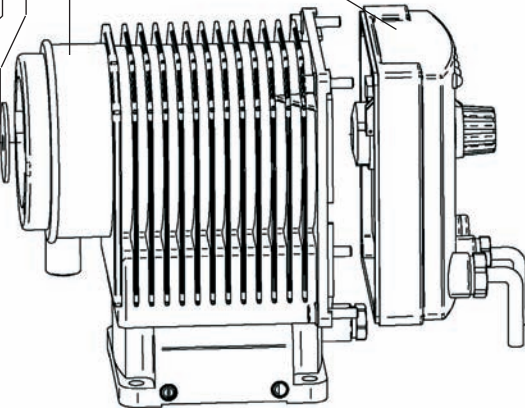
24 VDC 37302

Spare part: Dampening ring 78509

Control unit: 230 VAC 37113

115 VAC 37195

24 VDC 37303



Spare parts list

for MAGDOS LT *with double ball check valves*

Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	29748
② Valve balls	PVC / Glass / EPDM	33697
④ Valve seats	PP/ Glass / FPM	29748
⑤ O-rings	PP/ Glass / EPDM	33697
⑨ Diaphragm	PVDF / PTFE / PTFE	33862
	PVDF / PTFE / FPM	33855
	Stainless steel / PTFE	29749

Further materials upon request.

Spare parts list for MAGDOS LT <i>with spring-loaded check valves</i>		
Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	37332
② Valve balls	PVC / Glass / EPDM	37333
③ Springs	PP/ Glass / FPM	37332
④ Valve seats	PP/ Glass / EPDM	37333
⑤ O-rings	PVDF / PTFE / PTFE	37340
⑥ Diaphragm	PVDF / PTFE / FPM	37334
	Stainless steel / PTFE	37335

⑥ Spring-loaded check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	25087	25088
PVC / Glass / EPDM	33499	33500
PP/ Glass / FPM	35262	35263
PP/ Glass / EPDM	34733	34809
PVDF / PTFE / PTFE	29385	29384
PVDF / PTFE / FPM	34370	34371
Stainless steel / PTFE	25089	25090

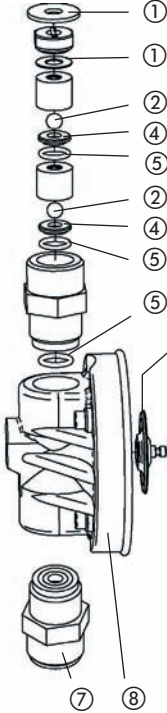
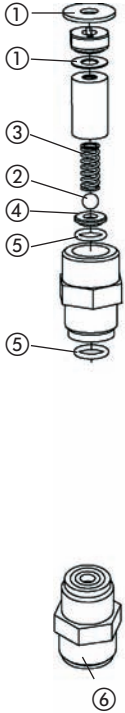
⑦ Double ball check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	20890	20891
PVC / Glass / EPDM	33497	33498
PP/ Glass / FPM	35605	35606
PP/ Glass / EPDM	34647	34648
PVDF / PTFE / PTFE	28111	28112
PVDF / PTFE / FPM	33703	33704
Stainless steel / PTFE	24029	24030

⑧ Dosing head including mounting bolts	
Material	Part No.:
PVC	23810
PP	34635
PVDF	28119
Stainless steel	23813
PVC with venting	37400

12.5 Spare parts list MAGDOS LT 17

Spring-loaded
check valve

Double ball
check valve



⑨ Diaphragm, PTFE-coated EPDM 81464

Spacer 33897

Deflector plate 22066

Drive: 230 VAC 37109

115 VAC 37196

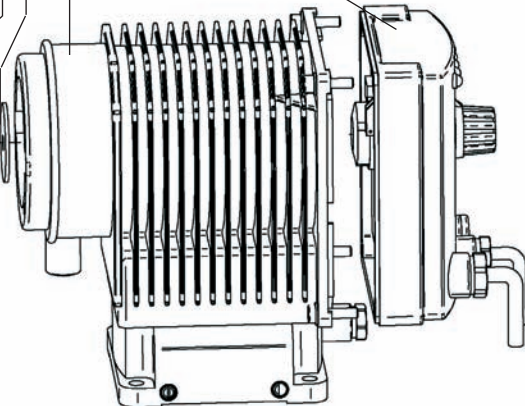
24 VDC 37302

Spare part: Dampening ring 78509

Control unit: 230 VAC 37113

115 VAC 37195

24 VDC 37303



Spare parts list

for MAGDOS LT *with double ball check valves*

Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	29750
② Valve balls	PVC / Glass / EPDM	33698
④ Valve seats	PP/ Glass / FPM	27750
⑤ O-rings	PP/ Glass / EPDM	33698
⑨ Diaphragm	PVDF / PTFE / PTFE	35572
	PVDF / PTFE / FPM	33856
	Stainless steel / PTFE	29751

Further materials upon request.

Spare parts list for MAGDOS LT <i>with spring-loaded check valves</i>		
Consists of:	Material	Part No.:
① Gaskets	PVC / Glass / FPM	37336
② Valve balls	PVC / Glass / EPDM	37337
③ Springs	PP/ Glass / FPM	37336
④ Valve seats	PP/ Glass / EPDM	37337
⑤ O-rings	PVDF / PTFE / PTFE	37341
⑥ Diaphragm	PVDF / PTFE / FPM	37338
	Stainless steel / PTFE	37339

⑥ Spring-loaded check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	25087	25088
PVC / Glass / EPDM	33499	33500
PP/ Glass / FPM	35262	35263
PP/ Glass / EPDM	34733	34809
PVDF / PTFE / PTFE	29385	29384
PVDF / PTFE / FPM	34370	34371
Stainless steel / PTFE	25089	25090

⑦ Double ball check valve complete		
Material	Part No.:	
	Suction valve	Discharge valve
PVC / Glass / FPM	20890	20891
PVC / Glass / EPDM	33497	33498
PP/ Glass / FPM	35605	35606
PP/ Glass / EPDM	34647	34648
PVDF / PTFE / PTFE	28111	28112
PVDF / PTFE / FPM	33703	33704
Stainless steel / PTFE	24029	24030

⑧ Dosing head including mounting bolts	
Material	Part No.:
PVC	23811
PP	34636
PVDF	29178
Stainless steel	23814

Problem	Possible Cause	Recommended Action	
Dosing pump not delivering or output too low.	Check valves leaking or blocked.	Clean check valves and bleed dosing head. See also start-up of pump.	
	Check valves incorrectly installed.	Reassemble check valves. Ensure that valve balls are located above valve seats.	
	Suction valve or suction line leaking or blocked.	Clean or seal suction line.	
	Suction lift too high.	<ul style="list-style-type: none"> - Install dosing pump at lower position. - Install pulsation dampener on suction side. - Install priming aid. 	
	Viscosity too high.	<ul style="list-style-type: none"> - Install spring-loaded check valves. - Enlarge suction and discharge line/diameter. - Use special dosing head >> Contact Lutz-Jesco.	
	No stroke movement observed.	Stroke length set to zero.	Correctly adjust pump stroke length.
		Diaphragm return spring broken.	Replace spring.
Fuse blown, LEDs off.		Check power supply voltage, inform Lutz-Jesco service.	
Power supply interrupted. Solenoid defective.		Switch on power supply voltage. Check coil resistance and isolation; replace solenoid, if required.	
Red low liquid level indication LED on.	Storage tank empty. Jack of level control incorrectly inserted. Defective cable.	Fill tank. Check suction line. Check cable.	

Problem	Possible Cause	Recommended Action
Frequent diaphragm failures.	No support plate. See Maintenance.	Replace diaphragm and support plate / spacer. When replacing diaphragm, check if deflector plate or diaphragm rod have been corroded by chemical.
	Diaphragm was not properly tightened to the diaphragm rod.	Screw in new diaphragm. Support plate / spacer must be clamped between diaphragm and diaphragm rod.
	System back pressure too high (measured at discharge connection of dosing pump).	Inspect system. Clean blocked injection nozzle. Reduce pressure spikes resulting from extremely long tubes by installing pulsation dampeners. Check function of safety valves.
	Media sediment in dosing head.	Flush dosing head.
Dosing Pump delivering too much.	Pressure on suction side too high. (Pump siphoning).	Install back pressure valve or suction controller.
	Stroke stop shifted.	Readjust stop.
	Stroke frequency too high.	Reduce stroke frequency.

If the problem cannot be solved with the support of the above instructions, contact our After-Sales Service for further assistance or return dosing pump to manufacturer.

14. Declaration of conformity


This declaration is no assurance of characteristics in the sense of the product liability law.
The safety notes in the operation & maintenance instructions must be obeyed.

EC Declaration of Conformity

We, **Lutz-Jesco GmbH**
Am Bostelberge 19
D 30900 Wedemark

hereby certify
that the product described in the following complies with the relevant fundamental
safety and sanitary requirements and the EC regulations mentioned below due to the
concept and design of the version sold by us.
If the product is modified without our consent, this declaration loses its validity.

Product description:	Solenoid Metering Pump M A G D O S
Model designation:	MD., MK., E., EL., FL., DE., DX., LT., LC..
Relevant EC regulations:	EC Low-Voltage Directive (73/23/EEC) EC Directive Relating to Machinery (98/37/EEC) EC Electromagnetic Compatibility Directive (93/68/EEC)
Applied harmonized standards, especially: Safety Requirements	EN 292-1 and EN 292-2, Safety of Machines EN 809, Pumps and Pump Devices of Liquids, EN 50081 Parts 1 and 2, EN 50082 Parts 1 and 2, Electromagnetic Compatibility, Emission of Noise and Noise Immunity
Applied national standards and technical specifications, especially:	DIN 19 635, Metering Devices for the Treatment of Drinking Water

Date, Signature of Manufacturer: 2005/01/01 . . . 

Information on the signer: Mr. Lucjan Gogolin, Head of Technical Office

This declaration is no assurance of characteristics in the sens of the product liability law.
The safety notes in the operating instructions must be observed.

15. Declaration of harmlessness

Contact your local distributor for return authorization.

Declaration of harmlessness

(Please fill in separately for each unit – pump or accessory –)

We forward the following metering equipment to you for repair:

Type (dosing pump or accessory): _____

Part No.: _____

Order No.: _____

Date of delivery: _____

Reason for repair: _____

Chemical metered: _____ Properties: Irritating: Yes/No
Corrosive: Yes/No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. **chemical, biological, toxic, flammable, and radioactive material**) and that the lubricant has been drained.*)

If Lutz-Jesco has to (further) clean the unit the costs will be charged to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / Address:

Phone:

Fax:

E-mail:

Customer No.:

Contact:

Date

Signature / Stamp

*) Please delete as applicable!

Please, return declaration with product
by attaching to the package.

Lutz-Jesco GmbH, Am Bostelberge 19
D-30900 Wedemark, Germany

16. Warranty

Please copy this page and send it back with the MAGDOS LT!

If the dosing pump fails during the warranty period, please return the cleaned MAGDOS LT with the completed warranty claim.

Sender

Company: Phone: Date:

Address: City ZIP Country

Contact person:

Lutz-Jesco order number: Delivery Date:

MAGDOS LT model: Serial number:

Max. capacity / max. pressure:

Description of fault:

.....

.....

Type of fault:

1. Mechanical fault

- Premature wear
- Wear parts
- Breakage / other damage
- Corrosion
- Damage in transit

2. Electrical fault

- Connections, plug connectors or cables loose
- Operating elements (e.g. switches / push-buttons)
- Electronic unit

3. Leaks

- Connections
- Dosing head

4. Inadequate or no delivery

- Diaphragm defective
- Others

Service conditions of the dosing pump

Point of use / system designation:

Accessories used (Suction line, PDS, etc.):

.....

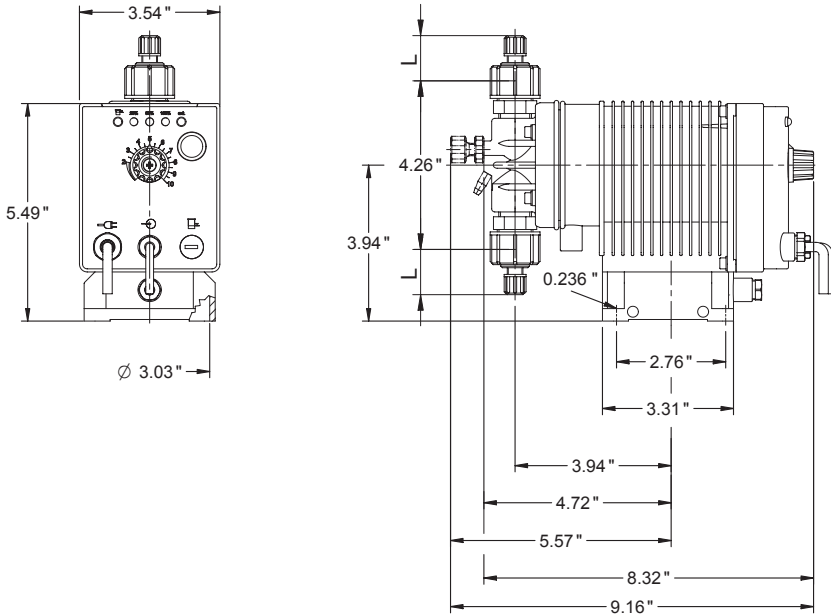
.....

Commissioning (date):

Duty period (approx. operating hours):

Please describe the specific installation and enclose a simple drawing of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

17. Dimensions for the USA



	Model	Connection Type	„L“ Dimension
standard	02, 06	4mm x 6mm PE tubing	1-3/8"
	1-17	1/4" x 3/8" PE tubing	1-1/8"
optional	1-17	1/4" FNPT Pipe	7/8"
	1-17	1/4" x 7/16" PVC tubing	1-1/8"
	1-17	3/8" x 1/2" PE tubing	2-1/8"

All dimensions in inches.

18. Technical data for the USA

MAGDOS LT	02	06	1	3	4	6	10	17
Max. pressure [psig]	174	232	232	232	174	145	116	43.5
Capacity at max. pressure* [gph]	0.03	0.12	0.23	0.42	0.87	1.37	2.08	3.56
Medium pressure* [psig]	87	116	116	116	87	87	87	29
Capacity medium pressure * [gph]	0.07	0.18	0.37	0.74	0.98	1.45	2.67	4.49
Max. stroke frequency [SPM]	80					120		
Suction lift [ft. H ₂ O] for non-effervescent media	10.0						6.6	4.0
Max. positive static suction head [ft. H ₂ O]	26.2						22.9	13.0
Voltage	115 V AC +/- 10 % (optional: 230 V AC +/- 10%; 24 V DC +/- 10%)							
Length power cord [ft.]	6 (115 V AC w/UL/CSA plug) (230 V AC w/shock-proof plug)							
Power consumption	30 watts (115 V AC, 230 V AC)							
Max. Power consumption during dosing stroke	115 V AC: 4.3 A; 230 V AC: 2.9 A; 24 V DC: 17 A							
Soldered fuse	115 V AC and 230 V AC: 3.15 A slow reacting 24 V DC: 10 A slow reacting							
Protection class	NEMA 4X / IP 65							
Insulation class	F							
Duration of input impulse	> 10 ms							
Voltage to level probe	5 VDC, for potential-free switching outputs							
Voltage to pulse input	5 VDC, for potential-free switching outputs							
Max. ambient temperature [°F]	PVC - 104 (optional: SS, PP, PVDF - 113)							
Max. temperature of process fluid [°F]	PVC - 95 (optional: SS, PP, PVDF - 122)							
Weight [lbs.]	Plastic head approx. 6.0							
max. sound pressure level [dB(A)] without pressure	58						66	
max. sound pressure level [dB(A)] at test pressure	60						68	
Connection type (standard)	4 x 6 mm PE tubing		1/4" x 3/8" PE tubing**					

* The exact metered capacities can be derived from the performance curves.

** optional: 1/4" FNPT Pipe, 1/4" x 7/18" PVC tubing, 3/8" x 1/2" PE tubing



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